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# AREI UPDATES: Cropping Patterns

*Updates on Agricultural Resources and Environmental Indicators*

Natural Resources and Environment Division
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## 1994 Cropping Patterns of Major Field Crops and Associated Chemical Use

- **Over half of corn and soybeans in major growing States in 1994 were grown in rotation with each other, whereas monoculture was practiced on over two-thirds of cotton acreage. Wheat was grown mostly in rotation with other crops or fallow.**

- **Reduced chemical use was associated with some rotations: less nitrogen was used on corn preceded by alfalfa or small grains and less insecticide was used on corn and winter wheat preceded by other crops.**

This information on cropping patterns by major field crops in major producing States and associated application rates of nitrogen, herbicide, and insecticide comes from the 1994 Cropping Practices Survey. Cropping patterns include rotations, where different crops are planted every year or every other year in the same field; and monoculture, where the same crop is planted for at least 3 consecutive years in the same field.

**Land in corn.** The two most prevalent cropping patterns in the 10 major corn-growing States in 1994 were: soybeans-corn on 48 percent of the land and continuous corn on 21 percent. In 1992 soybeans-corn was 43 percent and continuous corn was 24 percent. The soybeans-corn pattern was dominant in the Midwestern States. Monoculture was practiced the most in Nebraska with 57 percent of its corn acreage in this pattern. Significantly lower levels of nitrogen fertilizer were applied on fields where corn followed alfalfa, but only 4 percent of the acreage was in this pattern.

**Land in soybeans.** A corn-soybeans pattern was popular in the eight major soybean-growing States except Arkansas, and was utilized on 56 percent of the land in soybeans. The most frequent pattern in Arkansas was soybeans in rotation with row crops other than corn, reported on 43 percent of its soybean land. Because soybeans is a nitrogen fixing crop, one-fourth or less of the soybean acreage received any nitrogen fertilizer application.

**Land in cotton and wheat.** Continuous cotton monoculture was practiced on 71 percent of the cotton acreage in the 6 major producing States in 1994. Monoculture cotton used more insecticide than cotton in any other rotation. Continuous wheat and wheat-fallow-wheat patterns were popular in major wheat-growing States.

Among the potential benefits of cropping diversity on specific fields are: increased nitrogen content of soil through planting of legumes; reduced incidence of plant disease and insect and weed problems; reduced loss of soil, nutrients, and moisture; increased water-holding capacity of the soil through organic matter; and reduced water pollution often associated with runoff and leaching.

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### About AREI UPDATES

**AREI UPDATES** is a periodic series that supplements and updates information in **Agricultural Resources and Environmental Indicators (AREI),** USDA, ERS, AH-705, Dec. 1994. **UPDATES** report recent data from surveys of farm operators and others knowledgeable about changing agricultural resource use and conditions, with only minimal interpretation or analysis. Please contact the individual listed at the end of the text for additional information about the data in this **UPDATE**. If you would like to be added to the mailing list or have other questions about **AREI UPDATES**, or **AREI,** contact Richard Magleby, (202) 219-0436 [rmagleby@econ.ag.gov].

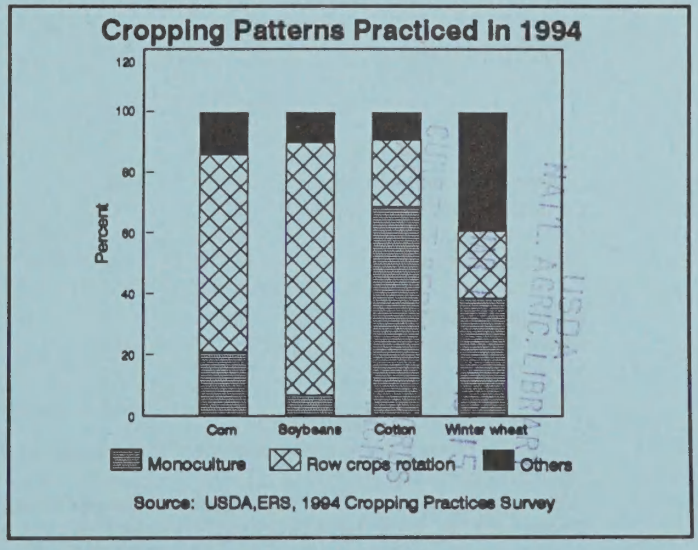

**Table 1—Cropping patterns used on land in corn, 10 major growing States, 1994**

| Cropping pattern[1] | IL | IN | IA | MI | MN | MO | NE | OH | SD | WI | Total, 10 States |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Million acres planted | | | | | | | | | | |
| | 11.60 | 6.10 | 13.00 | 2.55 | 7.00 | 2.40 | 8.60 | 3.70 | 3.80 | 3.75 | 62.50 |
| | Percent of acres | | | | | | | | | | |
| Continuous corn | 14 | 15 | 17 | 33 | 9 | 10 | 57 | 13 | 7 | 27 | 21 |
| Corn-soybeans-corn | 64 | 57 | 65 | 22 | 59 | 46 | 19 | 40 | 32 | 10 | 48 |
| Soybeans-corn-corn | 9 | 11 | 8 | 3 | 5 | 7 | 5 | 4 | 1 | 3 | 6 |
| Soybeans-soybeans-corn | 4 | 6 | 1 | 4 | 4 | 11 | 1 | 10 | 3 | 1 | 4 |
| Other row crops-corn | 5 | 4 | 2 | 14 | 6 | 17 | 6 | 11 | 6 | 11 | 7 |
| Idle-corn | 2 | 4 | 4 | 15 | 5 | 4 | 5 | 12 | 23 | 22 | 8 |
| Small grains-corn | nr | nr | nr | 5 | 4 | nr | 1 | 1 | 19 | 2 | 1 |
| Alfalfa-corn | nr | nr | 2 | 1 | 4 | 1 | 1 | 1 | 2 | 19 | 4 |
| All other patterns | 2 | 3 | 1 | 3 | 4 | 4 | 5 | 8 | 7 | 5 | 1 |

nr = not reported.
[1] Based on crops planted spring/summer 1992 through spring/summer 1994.
Source: USDA, ERS, 1994 Cropping Practices Survey data.

**Table 2—Cropping patterns used on land in soybeans, eight major growing States, 1994**

| Cropping pattern[1] | AR | IL | IN | IA | MN | MO | NE | OH | Total, eight States |
|---|---|---|---|---|---|---|---|---|---|
| | Million acres planted | | | | | | | | |
| | 3.45 | 9.60 | 4.70 | 8.80 | 5.70 | 4.60 | 2.90 | 4.00 | 43.75 |
| | Percent of acres | | | | | | | | |
| Soybeans-corn-soybeans | nr | 71 | 61 | 78 | 68 | 24 | 52 | 39 | 56 |
| Continuous soybeans | 28 | 3 | 3 | 2 | 1 | 20 | 4 | 9 | 7 |
| Other row crops-soybeans | 43 | 20 | 26 | 17 | 24 | 40 | 32 | 41 | 29 |
| Other row crops-DC[2]-DC[2] | 14 | nr | nr | nr | nr | 5 | nr | nr | 2 |
| Other row crops-soybeans-DC[2] | 11 | 2 | 3 | nr | nr | 3 | nr | nr | 2 |
| Soybeans-DC[2]-soybeans | 4 | nr | 1 | nr | nr | 3 | 1 | 2 | 1 |
| All other patterns | 0 | 4 | 6 | 3 | 7 | 5 | 11 | 9 | 7 |

nr = not reported
[1] Based on crops planted spring/summer 1992 through spring/summer 1994.
[2] Double cropped by planting and harvesting soybeans after harvesting winter wheat.
Source: USDA, ERS, 1994 Cropping Practices Survey data.

**Table 3—Cropping patterns used on land in cotton, six major growing States, 1994**

| Cropping pattern[1] | AZ | AR | CA | LA | MS | TX | Total, six States |
|---|---|---|---|---|---|---|---|
| | Million acres planted | | | | | | |
| | 0.31 | 0.98 | 1.10 | 0.90 | 1.28 | 5.45 | 10.02 |
| | Percent of acres | | | | | | |
| Continuous cotton w/o cover[2] | 72 | 86 | 50 | 91 | 95 | 58 | 68 |
| Continuous cotton with cover[3] | 7 | 3 | 4 | nr | nr | 2 | 3 |
| Cotton-sorghum-cotton | 2 | nr | nr | nr | nr | 12 | 6 |
| Idle-cotton-cotton | nr | nr | 6 | nr | nr | 1 | 1 |
| Small grains-cotton | 2 | 1 | 12 | nr | 1 | 5 | 4 |
| Other row crops-cotton | 6 | 10 | 14 | 7 | 4 | 18 | 15 |
| Idle-cotton | 11 | nr | 11 | 1 | nr | 4 | 3 |
| All other patterns | 0 | 0 | 3 | 1 | 0 | 0 | * |

nr = not reported. * = less than 1.
[1] Based on crops planted spring/summer 1992 through spring/summer 1994.
[2] Without cover crop.
[3] With small grain cover crop planted after cotton harvested.
Source: USDA, ERS, 1994 Cropping Practices Survey data.

**Table 4—Cropping patterns used on land in spring and durum wheat, five major growing States, 1994**

| Cropping pattern[1] | Spring wheat | | | | Total, four States | Durum wheat |
|---|---|---|---|---|---|---|
| | MN | MT | ND | SD | | ND |
| | Million acres planted | | | | | |
| | 2.60 | 3.45 | 9.10 | 2.10 | 17.25 | 2.45 |
| | Percent of acres | | | | | |
| Continuous wheat | 18 | 15 | 18 | 11 | 16 | 23 |
| Wheat-fallow-wheat | n | 49 | 14 | 6 | 19 | 25 |
| Other-fallow-wheat | nr | 28 | 7 | 10 | 11 | 0 |
| Other-row crop-wheat | 40 | nr | 16 | 43 | 21 | 2 |
| Other-wheat-wheat | 7 | 4 | 15 | 6 | 11 | 3 |
| Small grain-small grain-wheat | 24 | 3 | 29 | 18 | 18 | 24 |
| All other patterns | 11 | 1 | 1 | 6 | 4 | 3 |

nr = not reported.
[1] Based on crops planted spring/summer 1992 through spring/summer 1994.
Source: USDA, ERS, 1994 Cropping Practices data.

**Table 5—Cropping patterns used on land in winter wheat, 13 major growing States, 1994[1]**

| Cropping pattern[2] | CO | ID | IL | KS | MT | MO | NE | OH | OK | OR | SD | TX | WA | Total, 13 States |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Million acres harvested | | | | | | | | | | | | | |
| | 2.55 | 0.79 | 0.90 | 11.40 | 1.85 | 1.10 | 2.10 | 1.18 | 5.30 | 0.87 | 1.35 | 2.90 | 2.30 | 34.59 |
| | Percent of acres | | | | | | | | | | | | | |
| Continuous wheat | 48 | 5 | 3 | 48 | 6 | 2 | 5 | nr | 85 | nr | 13 | 56 | 11 | 39 |
| Wheat-fallow-wheat | 33 | 33 | nr | 24 | 48 | nr | 59 | nr | 3 | 66 | 24 | 1 | 55 | 24 |
| Other-wheat-wheat | 8 | 2 | nr | 8 | 8 | nr | 6 | nr | 2 | 2 | 7 | 1 | 4 | 5 |
| Corn-soybeans-wheat | nr | nr | 64 | 1 | nr | 21 | 1 | 63 | nr | nr | nr | nr | nr | 5 |
| Corn-corn-wheat | 2 | nr | 4 | * | nr | nr | nr | nr | 1 | nr | nr | 1 | 1 | 1 |
| Soybeans-soybeans-wheat | nr | nr | 5 | * | nr | 7 | nr | 21 | 1 | nr | nr | nr | nr | 1 |
| Soybeans-corn-wheat | nr | nr | 4 | 1 | nr | 10 | nr | nr | nr | nr | nr | nr | nr | 1 |
| Other-soybeans-wheat | nr | nr | 3 | 1 | nr | 15 | 2 | nr | nr | nr | 1 | nr | nr | 1 |
| Other-DC[3]-wheat | nr | nr | nr | nr | nr | 12 | nr | nr | nr | nr | nr | nr | nr | 1 |
| DC[3]-DC[3]-wheat | nr | nr | 1 | nr | nr | 6 | nr | nr | nr | nr | nr | nr | nr | 1 |
| Other-row crop-wheat | nr | 25 | 3 | nr | nr | 17 | nr | 7 | 4 | 6 | 19 | 24 | 7 | 4 |
| Other-small grains-wheat | nr | 3 | nr | nr | 5 | nr | nr | 2 | 1 | nr | 4 | 1 | nr | 1 |
| Small grains-small grains-wheat | 3 | 6 | nr | nr | 11 | nr | 1 | nr | nr | 1 | nr | nr | 5 | 1 |
| Row crop-row crop-wheat | nr | 3 | 4 | 8 | 16 | 4 | 9 | nr | 2 | 6 | 31 | 5 | 5 | 6 |
| All other patterns | 6 | 23 | 9 | 9 | 6 | 6 | 17 | 7 | 1 | 19 | 1 | 11 | 12 | 9 |

nr = not reported. * = less than 1.
[1] Winter wheat planted in fall 1993 and harvested in 1994.
[2] Based on crops planted fall 1991 through fall 1993. No information on crops planted in 1994 after the wheat was harvested.
[3] Double cropped by planting and harvesting soybeans after harvesting winter wheat.
Source: USDA, ERS, 1994 Cropping Practices Survey data.

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**Table 6--Chemical use by cropping patterns on land in major field crops, 1994**

| Crop/Cropping pattern | Nitrogen applied | | Herbicide applied | | Insecticide applied | |
|---|---|---|---|---|---|---|
| | Percent[1] | Rate[2] | Percent[1] | Rate[2] | Percent[1] | Rate[2] |
| **Land in corn** | | | | | | |
| Continuous corn | 98 | 137 | 98 | 2.6 | 59 | .87 |
| Corn-soybeans-corn | 98 | 134 | 99 | 3.0 | 13 | .75 |
| Other row crops-corn | 98 | 138 | 98 | 2.9 | 34 | .85 |
| Idle-corn | 96 | 112 | 94 | 2.8 | 14 | .81 |
| Small grain-corn | 94 | 87 | 94 | 1.9 | 51 | .25 |
| Alfalfa-corn | 83 | 74 | 96 | 2.5 | 17 | .81 |
| **Land in soybeans** | | | | | | |
| Continuous soybeans | 25 | 23 | 99 | 1.1 | 10 | * |
| Corn-soybeans | 10 | 20 | 99 | 1.1 | 10 | * |
| Other row crops-soybeans | 16 | 31 | 98 | 1.1 | 10 | * |
| Wheat-soybeans double cropped | 15 | 51 | 90 | 1.4 | 3 | .8 |
| Idle-soybeans | 13 | 14 | 98 | 1.2 | 0 | * |
| **Land in cotton** | | | | | | |
| Continuous cotton | 85 | 115 | 94 | 2.5 | 69 | 2.8 |
| Sorghum-cotton | 94 | 69 | 96 | 1.3 | 83 | 1.3 |
| Other row crops-cotton | 93 | 100 | 95 | 1.6 | 75 | 1.9 |
| Idle-cotton | 70 | 129 | 91 | 1.6 | 60 | 2.7 |
| Other crops-cotton | 94 | 134 | 89 | 1.7 | 81 | 1.8 |
| **Land in winter wheat** | | | | | | |
| Continuous wheat | 87 | 66 | 42 | .2 | 20 | .4 |
| Fallow-wheat | 81 | 46 | 61 | .5 | 4 | .4 |
| Fallow-wheat-wheat | 92 | 55 | 52 | .5 | 3 | 1.2 |
| Corn-soybeans-wheat | 99 | 90 | 25 | .2 | 0 | * |
| Other-soybeans-wheat | 100 | 81 | 26 | .3 | 0 | * |
| **Land in spring wheat** | | | | | | |
| Continuous wheat | 89 | 77 | 97 | .6 | 0 | * |
| Fallow-wheat | 70 | 41 | 92 | .5 | 0 | * |
| Small grains-wheat | 97 | 76 | 91 | .5 | 3 | .2 |
| Row crops-wheat-wheat | 95 | 83 | 95 | .5 | 0 | * |

* = none reported.

[1] Percent of planted acres receiving an application.

[2] Average application rates, lbs. of active ingredient per treated acre.

Source: USDA, ERS, 1994 Cropping Practices Survey data.

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